lar to that covering the periphery, and on it were some large cavities containing one or two large uncoloured cells, probably three. Similar empty cavities could be seen at certain points in the substance of the nodosity, and had apparently been of the same nature, and become inclosed by the layer of polygonal cells.—*Lancet*, August 3, 1878.

SURGERY.

Septic and Aseptic Wound-Fevers.

One difference between cases of surgical operation and of injuries treated antiseptically and those treated by the old methods is, that in a large proportion of the former, if successfully managed, there is no rise of temperature whatever, even though the extent of wound be such that under ordinary circumstances the fever would be sufficiently severe to cause death. On the other hand, fever, and even considerable elevation of temperature, may occur in cases where the wounds have apparently been treated with all the precautions of antiseptic surgery. The fever, however, which is met with where the antiseptic method has been employed, is remarkable for the slight constitutional disturbance with which it is accompanied. The elevation of temperature is almost the only, or at any rate the only remarkable, clinical symptom. In spite of their fever, the patients scarcely feel ill. This peculiarity of the fever accompanying antiseptic wounds has been carefully studied for several years, in Professor VOLKMANN's clinic at Halle, by himself and Dr. ALFRED GENZMER, and they have summed up the conclusions which they have already arrived at in No. 121 of the *Sammlung Klinischer Vorträge.*

To the fever which accompanies ordinary wounds they give the name of "septic," and to that which may or may not be present in wounds treated antiseptically, according to the rules laid down by Professor Lister, that of "aseptic" wound-fever. Out of a thousand cases of severe injury or severe operations treated with complete success by the antiseptic method, about one-third will recover, roughly speaking, without any fever at all, one-third will have moderate fever, and one-third high fever. At first the occurrence of fever under the antiseptic treatment was considered by Volkmann to be due to some defect in the management of the dressing, but careful observation of a large number of patients showed that after all those cases in which the fever could be explained by the occurrence of small abscesses in the neighbourhood of the sutures, by imperfect drainage, by sloughing of the edges of the wound, by carbolic-acid eruptions, by individual susceptibility to the contact of the air, and by other causes (all of which clearly gave rise to transient septic infection of the mildest character), there still remained a large number of patients who had more or less severe, and more or less protracted, fever, while the progress of the wound was completely normal, without redness, swelling, purulent discharge, or the least deviation from the typical course of an antiseptically-treated wound.

The remarkable thing about aseptic fever is its complete apparent independence of the condition of the wound. A patient may have a temperature ranging from 39.5° to 40.5° Cent. (103.1° to 104.9° Fahr.) for a week or ten days, and yet appear perfectly well; in fact, he may be able, as is frequently the case at Halle after wounds or operations on the upper extremities, to walk two or three miles from his home in the country every day to the hospital to have the dressing changed. In aseptic fever, even with the highest temperatures, Volkmann and Genzmer never found the tongue dry, though there was often increased thirst.

The skin never felt so hot to the touch as it was proved to be by the thermometer, and it was always moist, and not dry. Profuse sweats were not unfrequent. The urine was secreted in remarkable abundance, and the appetite of the patient was but little, if at all, affected. There was scarcely any decrease in the excretion of chlorides; on the other hand, urea was abundantly excreted, the amount being apparently proportional to the intensity of the fever. The average relation between chlorides and urea in aseptic fever was found to be as 1 : 2 — 3, and in septic fever as 1 : 10 — 18. There was usually rather a tendency to looseness of the bowels than to constipation. In spite of the fever the patients lost very little flesh or strength. The frequency of the pulse corresponded in general terms to the height of the fever, just as in the sceptic form, but its volume was never so small, nor its tension so marked, as it often is in the latter.

The pure form of aseptic fever is characterized by Volkmann and Genzmer as "harmless and without prognostic significance." Of course between these cases of pure aseptic fever and the cases of ordinary septic fever there are numerous transitional forms, which depend most probably on the imperfection of the present antiseptic method, by which the development of specific processes of decomposition in the secretions of the wound is not always completely prevented. The final issue of such cases depends on the predominance of the septic or aseptic element.

Cases of pure aseptic fever are rare under the old method of dressing wounds, though they do occur; on the other hand, well-marked aseptic fever is not uncommon, according to Volkmann, in cases of subcutaneous injury, severe contusions of joints, and especially in subcutaneous fractures of bones. Thus, out of fourteen cases of simple fracture of the thigh recently admitted into Volkmann's clinic, all but three were accompanied with fever ranging from 38.9° to 40° Cent. On the other hand, in only a half of a number of cases of simple fracture of the leg was there any elevation of temperature. The smaller proportion of febrile cases in the latter category is explained by Volkmann to depend on the different mode of treatment of the two kinds of fractures in his clinic, fractures of the leg being either put up in plaster of Paris or in splints, whereas fractures of the thigh are invariably treated by extension with weights, so that in the former case there is less opportunity for local irritation or reaction than in the latter.

But not only are subcutaneous fractures not invariably, as some authorities have asserted, afebrile in their course, but the fever which accompanies them is not always purely aseptic in its character. Volkmann and Genzmer have noticed this especially in fractures of the neck of the femur, and they ask whether the high temperature and the general septic character of the symptoms depend in these cases on inflammatory complications which have been overlooked in internal organs, or to an unusual development of poisonous exudations between the surfaces of the fractured bone. Anyhow, with these facts before us it would be unfair to demand that patients with open wounds submitted to antiseptic treatment should exhibit *no* elevation of temperature in the early days of the healing process.

The theoretical explanation of the peculiar behaviour of aseptic wound-fever we shall give in the words of its authors: "Aseptic wound-fever," they say, "is after all, in our opinion, nothing but a fever due to absorption, but it differs from septic fever in this respect, that the substances absorbed are not so very different from those which are produced by the retrograde metamorphosis of the tissues, and the various nutritive processes which occur physiologically in the body; whereas, in septic fever, heterologous, poisonous, and putrid bodies or fluids which contain some specific element or other, capable of exciting processes of decomposition, find their way into the blood. The knowledge which has been obtained by experiments on transfusion, and even on autotransfusion, prevents our doubting for a single moment that such substances as we have supposed to have given rise to aseptic fever are capable of producing large elevations of the temperature of the blood."

In the repair of all, even of subcutaneous injuries, large portions of tissue must be decomposed and absorbed, and, as a fact, aseptic fever most often occurs, and is highest and most protracted, in the antiseptic treatment of contused and lacerated wounds, and after operations resulting in an excessively large breach of surface. It is a strong argument in favour of the above view of aseptic fever as an absorption-fever that Volkmann and Genzmer have almost invariably succeeded in rendering the most severe operations and injuries afebrile by means of permanent antiseptic irrigation, combined with abundant drainage of the deepest parts of the wound, so that the secretions which form between the sides of the wound in the first few days after operation are continually washed away. In concluding their observations, which they frankly admit to be provisional in character, the authors point out that one result of their researches must be to prevent a great part of the clinical symptoms of fever being referred so exclusively to the rise in the temperature of the blood as has lately been so much the fashion. The use of the thermometer *per se* gives very uncertain indications in antiseptic patients when we wish to determine whether danger is to be apprehended from their wounds, while, on the other hand, careful observation on the *general* condition of the system is of the highest importance.—*Med. Times and Gaz.*, June 22, 1878.

Occurrence of a Pustular Eruption in Pyæmic Cases.

Mr. H. C. Cameron relates (in the *Lancet*, July, 1878, p. 65) two cases of this apparently rare complication in pyæmic cases. A young woman was admitted into hospital, with well-marked anthrax of the lower lip, on October 10, 1876, and died October 12. On admission, there were no cutaneous symptoms; but, on the 11th, the body and extremities were covered with sudamina, and numerous small purpuric spots, that did not disappear on pressure. Very soon the sudamina became purulent.

In another case, admitted on May 3d, 1877, a young girl, aged ten, had the great toe severely crushed three weeks previously. Acute peritonitis followed. Over the whole surface of the body an eruption, precisely similar to that in the previous case, existed, which quickly became pustular; and, before her death, the body was covered with pustules of very considerable size Dr. Foulis, who conducted the *post-mortem* examination in each case, was of opinion that the pustular eruption was due to capillary cutaneous injections.

[This pustular eruption and purpuric exanthem accompanying pyæmia are ably treated by an anonymous contributor in the *Gazette Hebdomadaire*, No. 46, 1868. The conclusions at which he arrives are these: 1. In cases of pyæmia, the skin becomes the seat of various exanthematous eruptions. 2. This symptom is rare, if one may judge from the silence of authors; it is the *avant courier* of approaching death. The late Dr. Anstie reported in the *Lancet*, January, 1870, p. 117, a singular case of spontaneous pyæmia occurring in a scullerymaid aged twenty, admitted Sept. 10th, 1869, with pain in her joints, that had existed several days. Temperature 101° Fahr. Sept. 12th. On the right side of her face were a couple of red spots. On the 13th, over the face and body were a number of bullæ and pustules in various stages. Temperature 104°. The left knee was much swollen, also the dorsum of the right hand. On Sept. 14th, the pustules and bullæ were still more numerous. Death occurred at 5 P. M. The *post-mortem* examination threw no light upon the origin of the pyæmia, which, Dr. Anstie thought, must have arisen from the foul atmosphere in which the patient lived.—*Rep.*]—*London Med. Record*, Aug. 15, 1878.